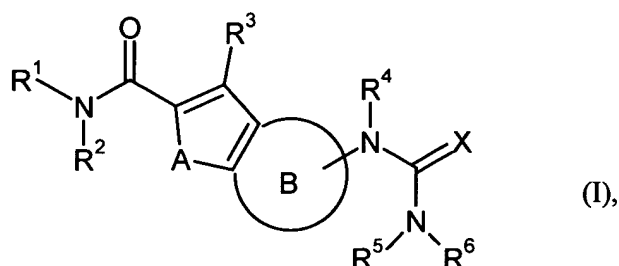


Amended Claims (Attorney Docket No. LeA 36 225)

1. (Original) A compound of the formula



in which

R^1 is 1-azabicyclo[2.2.2]oct-3-yl,

R^2 is hydrogen or C_1 - C_6 -alkyl,

R^3 is hydrogen, halogen, amino, hydroxy or C_1 - C_6 -alkyl,

R^4 is hydrogen, C_1 - C_6 -alkyl which is optionally substituted by a radical selected from the group of hydroxy, halogen, cyano, C_1 - C_6 -alkoxy, trifluoromethyl, trifluoromethoxy,

R^5 is hydrogen or C_1 - C_6 -alkyl, or

R^4 and R^5 together with the nitrogen atom to which they are bonded are a 5- to 6-membered heterocycle which is optionally substituted by up to 2 substituents independently of one another selected from the group of C_1 - C_6 -alkyl, C_1 - C_4 -acyl, oxo, thioxo,

R^6 is (i) hydrogen, (ii) C_1 - C_6 -alkyl, (iii) C_3 - C_8 -cycloalkyl, (iv) C_6 - C_{10} -aryl, (v) 5- to 10-membered heteroaryl, (vi) C_6 - C_{10} -arylcarbonyl, where (ii) is optionally substituted by phenyl, C_1 - C_6 -alkoxycarbonyl or C_1 - C_6 -alkoxy, and (iv), (v) and (vi) are optionally substituted by up to 3 radicals selected independently of one another from the group of C_1 - C_6 -alkyl, C_1 - C_6 -hydroxyalkyl, 3- to 8-membered heterocyclyl, C_6 - C_{10} -aryl, 5- to 10-membered heteroaryl, hydroxy, halogen, cyano, C_1 - C_6 -alkoxy, C_1 - C_6 -acyl, trifluoromethyl, trifluoromethoxy, nitro, amino, C_1 - C_6 -alkylamino, C_1 - C_6 -acylamino, or

R⁵ and R⁶ together with the nitrogen atom to which they are bonded are a 3- to 10-membered heterocycle which is optionally substituted by C₁-C₆-alkyl or C₁-C₆-hydroxyalkyl,

A is oxygen, nitrogen or sulfur,

X is oxygen or sulfur,

the ring B is benzo or pyrido, each of which are optionally substituted by radicals from the series halogen, cyano, trifluoromethyl, trifluoromethoxy, nitro, amino, C₁-C₆-alkyl and C₁-C₆-alkoxy,

and the solvates, salts or solvates of the salts of this compound.

2. (Original) A compound as claimed in claim 1, of the formula (I) in which

R¹ is 1-azabicyclo[2.2.2]oct-3-yl,

R² is hydrogen or C₁-C₆-alkyl,

R³ is hydrogen, halogen, amino, hydroxy or C₁-C₆-alkyl,

R⁴ is hydrogen, C₁-C₆-alkyl which is optionally substituted by a radical selected from the group of hydroxy, halogen, cyano, C₁-C₆-alkoxy, trifluoromethyl, trifluoromethoxy,

R⁵ is hydrogen or C₁-C₆-alkyl, or

R⁴ and R⁵ together with the nitrogen atom to which they are bonded are a 5- to 6-membered heterocycle which is optionally substituted by up to 2 substituents independently of one another selected from the group of C₁-C₆-alkyl, C₁-C₄-acyl, oxo, thioxo,

R⁶ is (i) hydrogen, (ii) C₁-C₆-alkyl, (iii) C₃-C₈-cycloalkyl, (iv) C₆-C₁₀-aryl, (v) 5- to 10-membered heteroaryl, where (ii) is optionally substituted by phenyl, or C₁-C₆-alkoxy, and (iv) and (v) are optionally substituted by up to 3 radicals selected independently of one another from the group of C₁-C₆-alkyl, C₁-C₆-hydroxyalkyl, 3- to 8-membered heterocyclyl, C₆-C₁₀-aryl, 5- to 10-membered heteroaryl, hydroxy, halogen, cyano,

C₁-C₆-alkoxy, C₁-C₆-acyl, trifluoromethyl, trifluoromethoxy, nitro, amino, C₁-C₆-alkylamino, C₁-C₆-acylamino, or

R⁵ and R⁶ together with the nitrogen atom to which they are bonded are a 3- to 8-membered heterocycle which is optionally substituted by C₁-C₆-alkyl or C₁-C₆-hydroxyalkyl,

A is oxygen, nitrogen or sulfur, and

X is oxygen or sulfur, and

the ring B is benzo or pyrido, each of which are optionally substituted by radicals from the series halogen, cyano, trifluoromethyl, trifluoromethoxy, nitro, amino, C₁-C₆-alkyl and C₁-C₆-alkoxy,

and the solvates, salts or solvates of the salts of this compound.

3. (Currently amended) A compound as claimed in ~~either of claims~~ claim 1 and 2, of the formula (I) in which

R¹ is 1-aza-bicyclo[2.2.2]oct-3-yl,

R² is hydrogen or C₁-C₄-alkyl,

R³ is hydrogen, halogen, amino, hydroxy or C₁-C₄-alkyl,

R⁴ is hydrogen, C₁-C₄-alkyl which is optionally substituted by a radical selected from the group of hydroxy, halogen, cyano, C₁-C₃-alkoxy, trifluoromethyl, trifluoromethoxy,

R⁵ is hydrogen or C₁-C₄-alkyl, or

R⁴ and R⁵ together with the nitrogen atom to which they are bonded are a 5- to 6-membered heterocycle which is optionally substituted by up to 2 substituents independently of one another selected from the group of C₁-C₆-alkyl, C₁-C₄-acyl, oxo, thioxo,

R⁶ is (i) hydrogen, (ii) C₁-C₄-alkyl, (iii) C₅-C₆-cycloalkyl, (iv) phenyl, (v) 5- to 6-membered heteroaryl, (vi) C₆-C₁₀-arylcarbonyl, where (ii) is optionally substituted by phenyl, C₁-C₄-alkoxycarbonyl or C₁-C₃-alkoxy, and (iv), (v) and (vi) are optionally

substituted by up to 3 radicals selected independently of one another from the group of C₁-C₄-alkyl, C₁-C₄-hydroxyalkyl, 3- to 8-membered heterocyclyl, C₆-C₁₀-aryl, 5- to 10-membered heteroaryl, hydroxy, fluorine, chlorine, cyano, C₁-C₃-alkoxy, C₁-C₃-acyl, trifluoromethyl, trifluoromethoxy, nitro, amino, C₁-C₃-alkylamino, C₁-C₃-acylamino, or

R⁵ and R⁶ together with the nitrogen atom to which they are bonded are a 3- to 10-membered heterocycle which is optionally substituted by C₁-C₃-alkyl or C₁-C₃-hydroxyalkyl,

A is oxygen or sulfur,

X is oxygen,

the ring B is benzo or pyrido, each of which are optionally substituted by radicals from the series chlorine, fluorine, cyano, trifluoromethyl, trifluoromethoxy, amino, C₁-C₄-alkyl and C₁-C₄-alkoxy,

and the solvates, salts or solvates of the salts of this compound.

4. (Currently amended) A compound as claimed in ~~any of claims~~ claim 1 to 3, of the formula (I) in which

R¹ is 1-azabicyclo[2.2.2]oct-3-yl,

R² is hydrogen or C₁-C₄-alkyl,

R³ is hydrogen, halogen, amino, hydroxy or C₁-C₄-alkyl,

R⁴ is hydrogen or C₁-C₄-alkyl which is optionally substituted by a radical selected from the group of hydroxy, C₁-C₃-alkoxy, trifluoromethyl, trifluoromethoxy,

R⁵ is hydrogen or C₁-C₄-alkyl, or

R⁴ and R⁵ together with the nitrogen atom to which they are bonded are a 5- to 6-membered heterocycle which is optionally substituted by up to 2 substituents independently of one another selected from the group of C₁-C₆-alkyl, C₁-C₄-acyl, oxo, thioxo,

R⁶ is (i) hydrogen, (ii) C₁-C₄-alkyl, (iii) C₅-C₆-cycloalkyl, (iv) phenyl, (v) 5- to 6-membered heteroaryl, where (ii) is optionally substituted by phenyl, and (iv) and (v) are optionally substituted by up to 3 radicals selected independently of one another from the group of C₁-C₄-alkyl, C₁-C₄-hydroxyalkyl, hydroxy, chlorine, fluorine, cyano, C₁-C₃-alkoxy, C₁-C₆-acyl, trifluoromethyl, trifluoromethoxy, amino, C₁-C₃-alkylamino, C₁-C₃-acylamino, or

R⁵ and R⁶ together with the nitrogen atom to which they are bonded are a 5- to 6-membered heterocycle which is optionally substituted by C₁-C₃-alkyl or C₁-C₃-hydroxyalkyl,

A is oxygen, nitrogen or sulfur,

X is oxygen and

the ring B is benzo or pyrido, each of which are optionally substituted by radicals from the series chlorine, fluorine, cyano, trifluoromethyl, trifluoromethoxy, amino, C₁-C₄-alkyl and C₁-C₄-alkoxy,

and the solvates, salts or solvates of the salts of this compound.

5. (Currently amended) A compound as claimed in ~~any of claims~~ claim 1 to 4, of the formula (I) in which

R¹ is 1-azabicyclo[2.2.2]oct-3-yl,

R² to R⁴ are hydrogen,

R⁵ is hydrogen or C₁-C₄-alkyl, or

R⁴ and R⁵ together with the nitrogen atom to which they are bonded are a 5- to 6-membered heterocycle which is optionally substituted by up to 2 substituents independently of one another selected from the group of C₁-C₄-alkyl, C₁-C₄-acyl, oxo, thioxo,

R⁶ is (i) hydrogen, (ii) C₁-C₄-alkyl, (iii) C₅-C₆-cycloalkyl, (iv) phenyl, (v) pyridyl, (vi) C₆-C₁₀-arylcarbonyl, where (ii) is optionally substituted by phenyl, C₁-C₄-alkoxycarbonyl or C₁-C₃-alkoxy, and (iv), (v) and (vi) are optionally substituted by up to 3 radicals selected independently of one another from the group of C₁-C₄-alkyl,

C₁-C₄-hydroxyalkyl, 3- to 8-membered heterocyclyl, C₆-C₁₀-aryl, 5- to 10-membered heteroaryl, hydroxy, fluorine, chlorine, cyano, C₁-C₃-alkoxy, C₁-C₃-acyl, trifluoromethyl, trifluoromethoxy, nitro, amino, C₁-C₃-alkylamino, C₁-C₃-acylamino, or

R⁵ and R⁶ together with the nitrogen atom to which they are bonded are a 3- to 10-membered heterocycle which is optionally substituted by C₁-C₃-alkyl or C₁-C₃-hydroxyalkyl,

A is oxygen or sulfur,

X is oxygen,

the ring B is benzo,

and the solvates, salts or solvates of the salts of this compound.

6. (Currently amended) A compound as claimed in ~~any of claims~~ claim 1 to 5, of the formula (I) in which

R¹ is 1-azabicyclo[2.2.2]oct-3-yl,

R² is hydrogen,

R³ is hydrogen, chlorine, fluorine, amino or C₁-C₃-alkyl,

R⁴ is hydrogen, methyl or ethyl, where methyl and ethyl are optionally substituted by a radical selected from the group of hydroxy, methoxy, ethoxy, trifluoromethyl, trifluoromethoxy, or

R⁴ and R⁵ together with the nitrogen atom to which they are bonded are a 5- to 6-membered heterocycle which is optionally substituted by up to 2 substituents independently of one another selected from the group of C₁-C₃-alkyl, C₁-C₄-acyl, oxo, thioxo,

R⁵ is hydrogen or C₁-C₃-alkyl,

R⁶ is (i) hydrogen, (ii) C₁-C₄-alkyl, (iii) cyclopentyl, cyclohexyl, (iv) phenyl, (v) benzyl, (vi) phenethyl, where (iv) to (vi) are optionally substituted by up to 3 radicals selected independently of one another from the group of hydroxy, chlorine, fluorine,

cyano, methoxy, ethoxy, C₁-C₄-acyl, trifluoromethyl, trifluoromethoxy, amino, C₁-C₃-alkylamino,

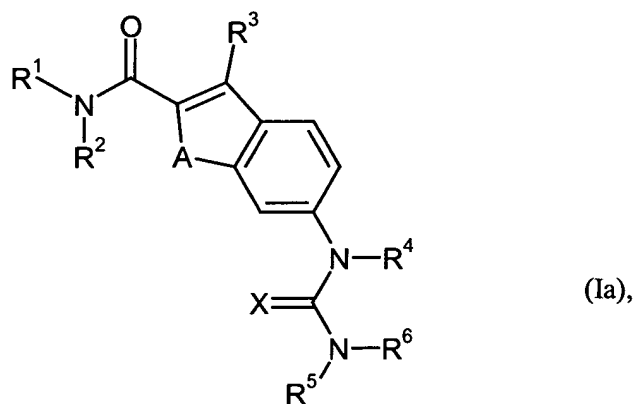
A is oxygen or sulfur,

X is oxygen and

the ring B is benzo which is optionally substituted by radicals from the series chlorine, fluorine, cyano, trifluoromethyl, trifluoromethoxy, C₁-C₄-alkyl, methoxy and ethoxy,

and the solvates, salts or solvates of the salts of this compound.

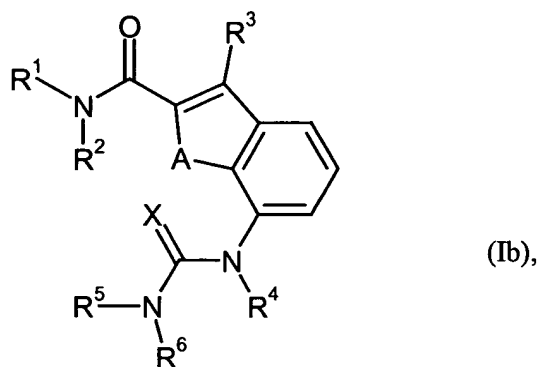
7. (Currently amended) A compound of the formula



in which

R¹ to R⁶, A and X have the meanings indicated in ~~claims claim 1 to 6~~ claim 1 to 6, and the solvates, salts or solvates of the salts of this compound.

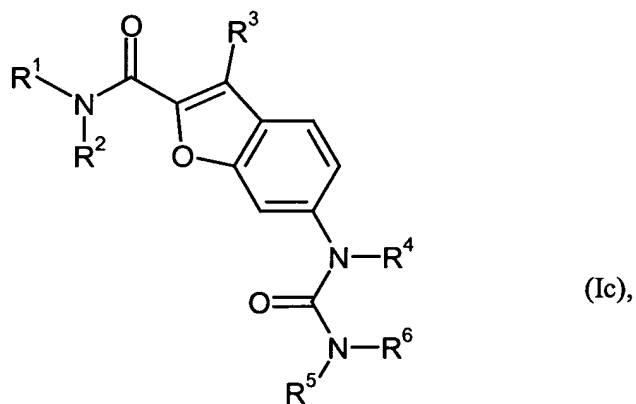
8. (Currently amended) A compound of the formula



in which

R¹ to R⁶, A and X have the meanings indicated in ~~claims claim 1 to 6~~ claim 1 to 6, and the solvates, salts or solvates of the salts of this compound.

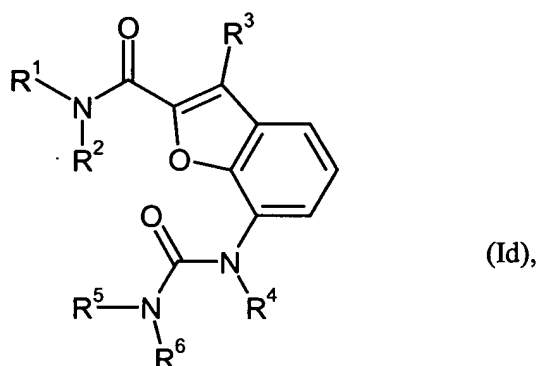
9. (Currently amended) A compound of the formula



in which

R¹ to R⁶ have the meanings indicated in ~~claims claim 1 to 6~~ claim 1 to 6, and the solvates, salts or solvates of the salts of this compound.

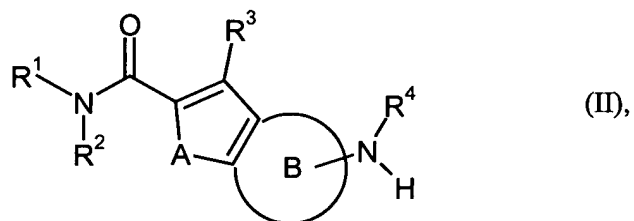
10. (Currently amended) A compound of the formula



in which

R^1 to R^6 have the meanings indicated in ~~claims claim~~ claim 1 to 6, and the solvates, salts or solvates of the salts of this compound.

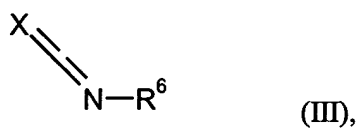
11. (Currently amended) A process for preparing compounds as claimed in ~~claims claim~~ claim 1 to 10, in which compounds of the formula



in which

R^1 to R^4 , A and B have the meanings mentioned in ~~claims claim~~ claim 1 to 10,

are reacted with compounds of the formula



in which

X and R⁶ have the meanings mentioned in ~~claims~~ claim 1 to 5,

and the resulting compounds (I) are reacted where appropriate with the appropriate (a) solvents and/or (b) bases or acids to give the solvates, salts or solvates of the salts thereof.

12. (Cancelled).
13. (Currently amended) A medicament comprising at least one compound as claimed in ~~any of claims claim~~ 1 to 10 and at least one pharmaceutically acceptable, essentially nontoxic carrier or excipient.
14. (Currently amended) ~~The use of compounds as claimed in any of claims 1 to 10 for producing a composition~~ A method for improving perception, concentration, learning and/or memory comprising administering to a human or animal an effective amount of a compound of claim 1.
15. (Currently amended) ~~The use of compounds as claimed in any of claims 1 to 10 for producing a medicament~~ A method for the treatment and/or prophylaxis of impairments of perception, concentration, learning and/or memory comprising administering to a human or animal an effective amount of a compound of claim 1.
16. (Currently amended) ~~A medicament as claimed in claim 13~~ A method for the treatment and/or prophylaxis of impairments of perception, concentration, learning and/or memory comprising administering to a human or animal an effective amount of a medicament of claim 13.
17. (Cancelled).